

REMARKS

Claims 20 and 21 have been added based on the disclosure at page 9, lines 24-25 in the specification. Claims 18 and 19 have been canceled.

Entry of the above amendment is respectfully requested.

Anticipation Rejection over Ohno et al

On page 2 of the Office Action, claims 1-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohno et al (WO 01 /98240 A2).

In response, Applicants note initially that Ohno et al discloses a process for producing hexafluoroethane which comprises (1) a step of reacting a gas mixture containing pentafluoroethane and a compound having chlorine atom with hydrogen fluoride in the gas phase in the presence of a fluorination catalyst to fluorinate said compound having chlorine atom, and (2) a step of reacting the gas mixture containing pentafluoroethane and the fluorinated compound obtained in said step (1) with fluorine gas in the gas phase in the presence of a diluting gas (see, e.g., claim 1).

The first difference between the process of the present invention and the process of Ohno is in the starting material: a crude hexafluoroethane containing chlorine compounds each having two carbon atoms in the process of the present invention, in contrast to pentafluoroethane containing a compound having chlorine atom in the process of Ohno.

The second difference is in the material to be reacted with hydrogen fluoride in the gas phase in the presence of a fluorination catalyst: a hexafluoroethane mixture containing the chlorine compounds as a bottom flow from a distillation column in the process of the present

invention, in contrast to the pentafluoroethane containing a compound having chlorine atom as the starting material in the process of Ohno.

In the processes of the present invention and Ohno, it is common that a fluorinated hydrocarbon compound containing impurity chlorine is fluorinated with hydrogen fluoride to prevent the retention of chlorine compounds in the reaction system. However, the entire starting material is reacted with hydrogen fluoride in the gas phase in the process of Ohno, while only the hexafluoroethane mixture containing chlorine compounds coming out from the bottom of the distillation column after distillation is subjected to the reaction with hydrogen fluoride in the process of the present invention. Due to the difference, the process of the present invention is highly advantageous in catalyst efficiency and reaction scale over the process of Ohno. For example, where the top flow from the distillation column is 80% of the crude hexafluoroethene introduced into the distillation column, the bottom flow of the distillation column is 20% of the introduced crude hexafluoroethane, so the amount of the gas to be reacted with hydrogen fluoride is 1/5 as compared with the case of the process of Ohno.

In any event, Ohno neither teaches nor suggests a process in which a crude hexafluoroethane containing chlorine compounds having two carbon atoms is employed as the starting material. Therefore, the present invention is clearly distinguished from Ohno.

Also, it is noted that the 150 to 480°C temperature range cited by the Examiner is disclosed in the Ohno reference in connection with the step of reacting a gas mixture containing pentafluoroethane and a compound having chlorine atom with hydrogen fluoride in the gaseous phase in the presence of a fluorination catalyst to fluorinate the compound having chlorine atom (see page 7, lines 13-16, and page 6, lines 12-16 in Ohno).

In contrast, the flow in the present invention which is contacted with hydrogen fluoride in the gas phase at a temperature of 300 to 500°C in the presence of a fluorination catalyst is a hexafluoroethane mixture containing chlorine compounds.

To clarify this distinction further, Applicants have added claims 20 and 21 reciting that the hexafluoroethane mixture contains 90 mol% or more of CF₃CF₃ based on the disclosure at page 9, lines 24-25 in the specification.

For at least the above reasons, Applicants submit that the present invention is not anticipated by (or obvious over) the Ohno reference. Accordingly, withdrawal of this rejection is respectfully requested.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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